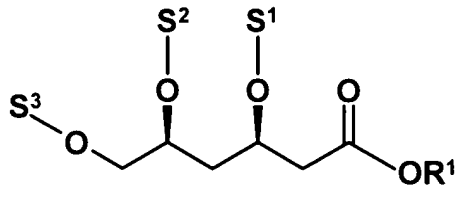
Patent claims:

1. Process for the preparation of a statin, comprising the following steps:

a) Preparation of a compound of the formula II



(II),

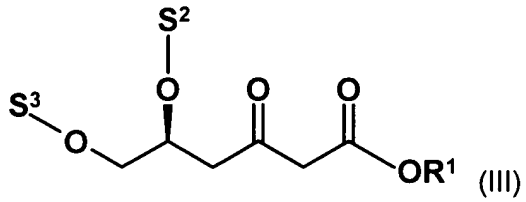
in which

S^1 denotes a hydrogen atom or a hydroxyl protective group,

S^2 and S^3, independently of one another, denote hydroxyl protective groups and

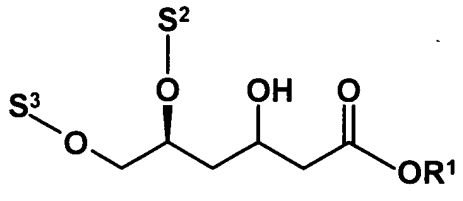
R^1 represents a hydrogen atom or a carboxyl protective group,

by stereoselective hydrogenation of a compound of the formula III



(III)

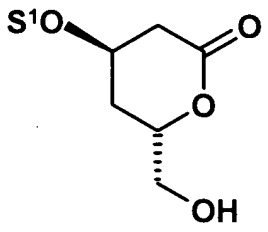
to give a compound of the formula II-a



(II-a)

and optionally introduction of a hydroxyl protective group and

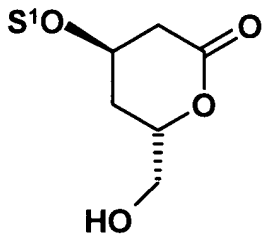
b) lactonization of the compound of the formula II to give a compound of the formula I-a



(I-a).

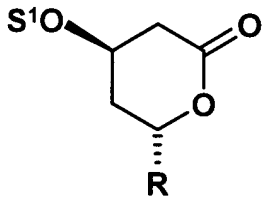
2. Process according to Claim 1, comprising the further step

c) conversion of the compound of the formula I-a



(I-a)

into a compound of the formula I

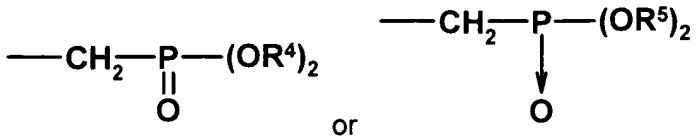


(I),

where the radical

S^1 is as defined in Claim 1,

R denotes $-CH_2R^2$, $-CHO$, $-CH=P(R^3)_3$, $-CH_2-P^+(R^3)_3M^-$,



or

,

R^2 denotes a halogen atom, $-C\equiv N$, $-CH_2NH_2$, $-SO_2-R^6$ or a leaving group,

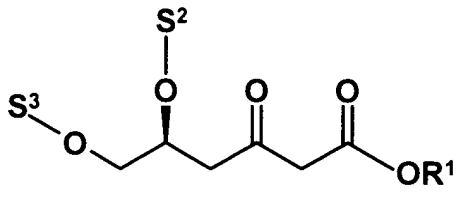
R^3, R^4 and R^5 complete a Wittig radical or a Horner-Wittig radical,

R^6 denotes a hydrogen atom or a C_{1-3}-alkyl or a C_{5-10}-aryl radical, which are optionally substituted by one or more radicals which, independently of one another, are selected from halogen atoms, heterocycles which contain 0 to 10 carbon atoms and 1 to 10 heteroatoms selected from sulphur, nitrogen and oxygen atoms, and functional groups and

M^- represents an opposite ion.

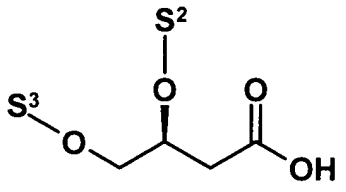
3. Process according to Claim 1 or 2, comprising the step:

preparation of a compound of the formula III



(III)

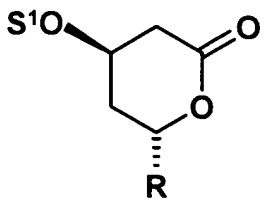
by chain extension of a compound of the formula IV



(IV).

4. Process according to any of Claims 1 to 3, the compound of the formula I being converted into the statin by one of the following process steps and then optionally by opening of the lactone ring and optionally by removal of protective groups:

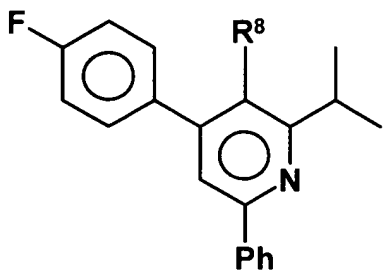
a) reaction of a compound of the formula (I)



(I),

in which the radical R represents a CHO group and the radical S^1 is as defined in Claim 1,

with a compound of the formula



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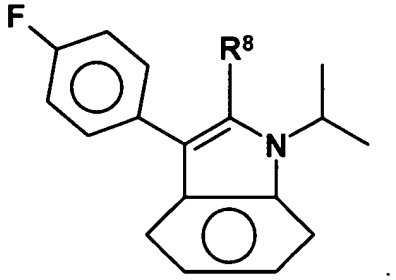
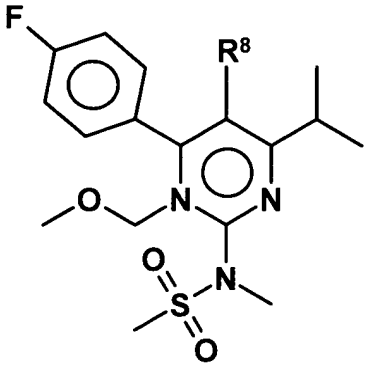
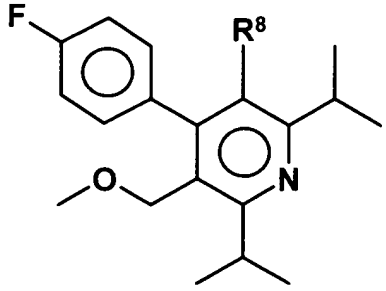


;



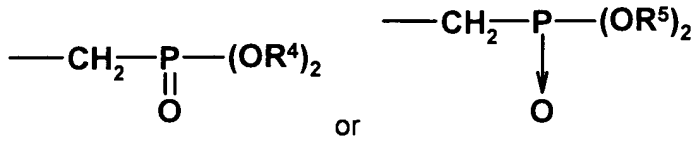
or



;

in which

R^8 denotes $-CH=P(R^3)_3$, $-CH_2-P^+(R^3)_3M^-$,

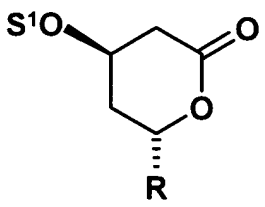


or

,

where R^3, R^4, R^5 and M are as defined in Claim 1,

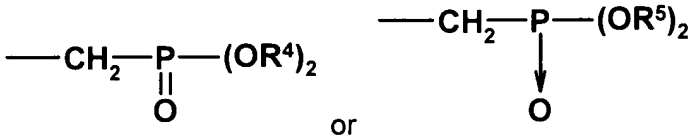
b) reaction of a compound of the formula I



(I),

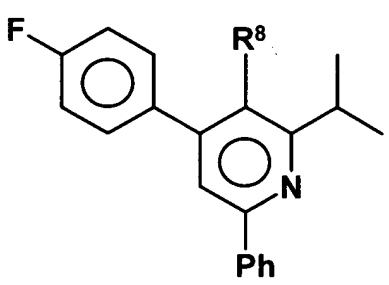
in which

the radical R denotes $-CH=P(R^3)_3$, $-CH_2-P^+(R^3)_3M^-$,



or

with a compound of the formula



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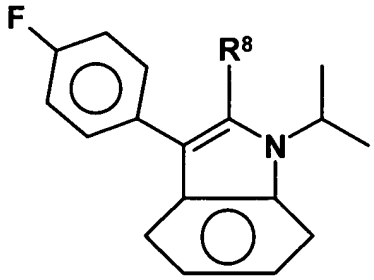
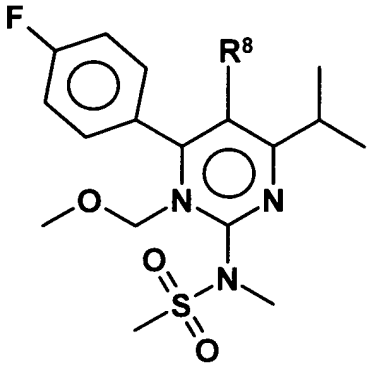
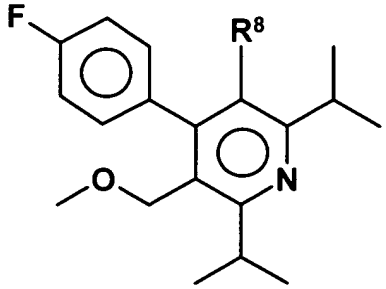


;



or

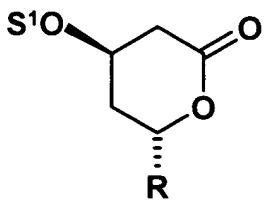


in which

R^8 denotes –CHO,

where R^3, R^4, R^5 and M are as defined in Claim 1,

c) reaction of a compound of the formula I

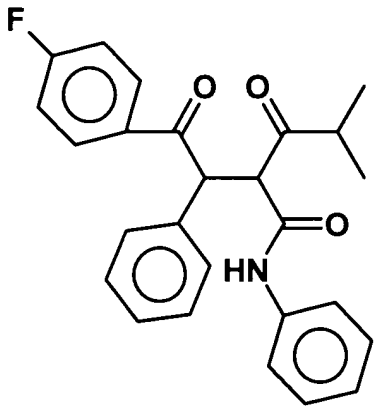


(I),

in which
the radical R is a group $-CH_2-C\equiv N$,

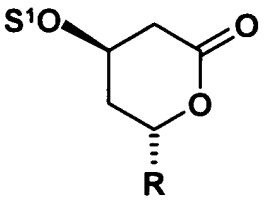
Hydrogenation of the compound of the formula I in which the radical R is a group $-CH_2-C\equiv N$, to give a compound of the formula I in which the radical R is a group $-CH_2-CH_2NH_2$,

and reaction of the compound of the formula I in which the radical R is a group $-CH_2-CH_2NH_2$ with a compound of the formula V



(V),

d) hydrogenation of a compound of the formula I

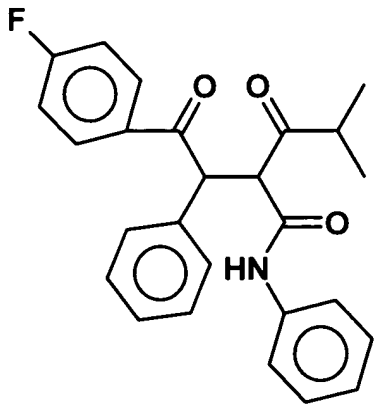


(I),

in which

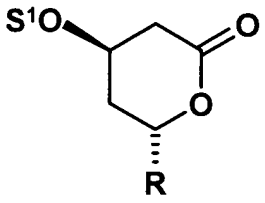
the radical R is a group $-CH_2-C\equiv N$, to give a compound of the formula I in which the radical R is a group $-CH_2-CH_2NH_2$,

and reaction of the compound of the formula I in which the radical R is a group $-CH_2-CH_2NH_2$ with a compound of the formula V



(V),

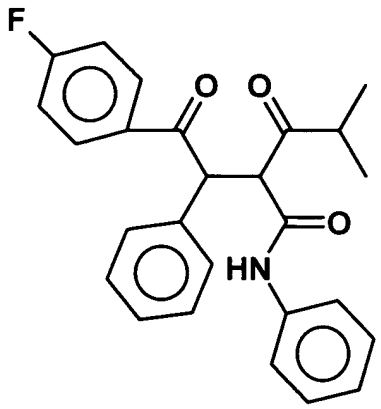
e) reaction of a compound of the formula (I)



(I),

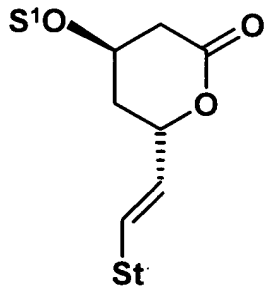
in which

the radical R is a group $-CH_2-CH_2NH_2$, with a compound of the formula V

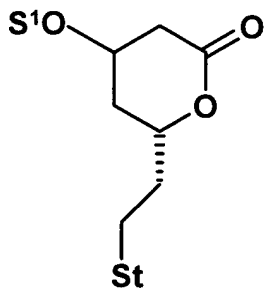


(V).

5. Process according any of Claims 1 to 4, characterized in that a compound of the formula



in which S^1 is as defined in Claim 1 and St represents the radical of the statin, is converted into a compound of the formula



by catalytic hydrogenation, and optionally the protective group S^1 is removed and optionally the lactone ring is opened.

6. Process according to any of Claims 1 to 5, the hydroxyl protective group S^1 being selected from a trimethylsilyl, triisopropylsilyl, trimethylsilylethyl, tert-butyldimethylsilyl, tert-butylmethylsilyl, di-tert-butylmethylsilyl, tert-butyldiphenylsilyl, triphenylsilyl, diphenylmethylsilyl, tris(trimethylsilyl) and para-tosyl protective group.

7. Process according to any of Claims 1 to 6, the protective groups S^2 and S^3 being bridged.

8. Process according to Claim 7, the protective groups S^2 and S^3 together representing an isopropylidene protective group.

9. Process according to any of Claims 2 to 7, the radical R representing a radical CH_2R^2 and R^2 representing a leaving group, the leaving group being selected from a halogen atom and a radical $-OSO_2-C_1-C_6$-alkyl or $-OSO_2-C_5-C_{10}$-aryl.

10. Process according to any of Claims 1 to 9, the radical R^1 denoting a hydrogen atom or a C_{1-3}-alkyl or C_{4-10}-aryl radical, which are optionally substituted by one or more radicals, which, independently of one another, are selected from halogen atoms, heterocycles which have 0 to 10 carbon atoms and 1 to 10 heteroatoms selected from sulphur, nitrogen and oxygen atoms, and functional groups.

11. Process according to any of Claims 1 to 10,

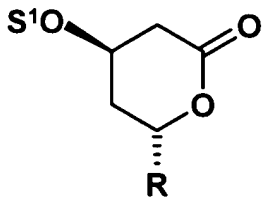
R^3 denoting a C_5- to C_{10}-aryl radical which is optionally substituted by one or two C_1-C_4-alkyl radicals and/or halogen atoms, a C_1-C_4-alkyl radical or a C_5-C_{10}-cycloalkyl radical,

R^4 denoting a C_1-C_4-alkyl radical,

R^5 denoting a C_1-C_6-alkyl or C_5-C_{10}-aryl radical.

12. Process according to any of Claims 1 to 11, the statin being fluvastatin, rosuvastatin, cerivastatin, glenvastatin or atorvastatin.

13. Compound of the formula I

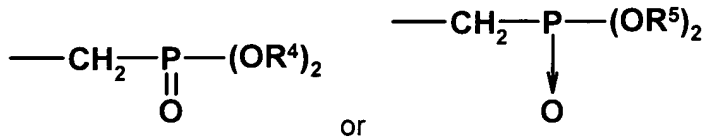


(I),

in which

S^1 and R are as defined in Claim 2, with the proviso that the radical S^1 does not represent a tert-butyldimethylsilyl group if the radical R represents a CHO, $-CH_2$-OTos, $-CH_2Cl$ or $-CH_2I$ group.

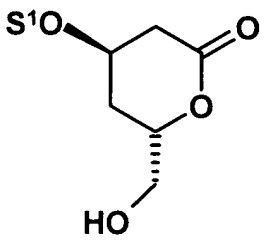
14. Compound according to Claim 13, in which the radical S^1 represents a tert-butyldimethylsilyl group and the radical R represents a $-CH_2R^2$, $-CH=P(R^3)_3$, $-CH_2-P^+(R^3)_3M^-$,



or

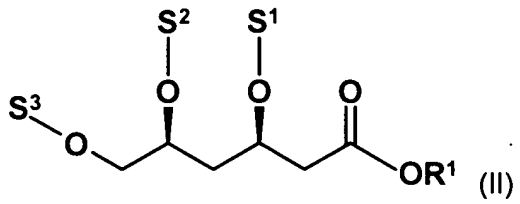
group, where R^2 represents a bromine atom, a $-C\equiv N$, a $-CH_2NH_2$ group or a radical $-SO_2-R^6$, and R^3, R^4, R^5, R^6 and M are as defined in Claim 2.

15. Process for the preparation of a compound of a formula (I-a)



(I-a)

in which the radical S^1 is as defined in Claim 1, characterized in that a compound of the formula II



(II)

in which

S^1, S^2, S^3 and R^1 are as defined in Claim 1, is converted into the compound of the formula I-a by lactonization.